HSA
ENGINEERS & SCIENTISTS
A member of the CRA Family of Companies

February 24, 2004 Ref. No. 80057243

Mr. Evan Skornick, REM
South Florida Water Management District
3301 Gun Club Road, MSC 4930
West Palm Beach, Florida 33406

Re: Milking R Dairy Status Report
Monitoring Period from September to December 2003
Lake Okeechobee Phosphorus Control Grant Program (C-14055)

Dear Mr. Skornick:

The following is an update to the status of Milking R Dairy stormwater runoff treatment improvement project being implemented under the Lake Okeechobee Phosphorus Control Grant Program. HSA Engineers & Scientists (HSA) is assisting Milking R Dairy, Inc. with implementing improvements to the existing stormwater treatment system at the Milking R Dairy.

Background

The treatment system receives stormwater runoff from approximately 93 acres of low intensity dairy pasture land. The runoff is collected in ditches that drain by gravity to the head works of the treatment system where it is pumped into the first stage mixing pond. Alum is mixed with the stormwater at a dosage of approximately 20 milligrams of aluminum per liter of stormwater (mg/L). The treated stormwater then flows by gravity into the remaining approximate 9.5 acres of the treatment system. This 9.5-acre treatment system is surrounded by a 2.5 to 3 foot tall earthen berm. Stormwater ultimately flows via gravity to the discharge point as shown in the attached **Figure G-02**. The metallic salt precipitates phosphorus contained in the stormwater and the resulting solids settle to the bottom of the treatment pond. The treated effluent flows by gravity into a culvert that runs underneath the dairy entrance road and then is discharged off site.

System Improvement

The stormwater runoff treatment system improvements were initiated in July 2003 by HSA personnel and Milking R Dairy employees. The existing chemical injection system was overhauled and the injection pumps were refurbished. A new pump was installed at the effluent end of the system and will be used to lift stormwater to a sand filter, which is

scheduled to be constructed during the Spring of 2004. In July 2003, a lime rock berm was constructed approximately twelve inches above grade downstream of the chemical mixing area as shown in the attached **Figure G-02**. **Figures G-01 – G-04** show the treatment system specifications and design. The limerock berm spans approximately 300 feet across the treatment system and allows increased settling times for the treated water and evenly distributes the water across the treatment system.

The system was initially operated from August 3 to September 11, 2003, for a trouble shooting/shakedown period. Primary operation and sampling began on September 12, 2003. ISCO programmable samplers were installed at the treatment system influent and effluent locations in metal protective housings (see **Figure G-02**). The auto samplers have been configured to collect samples when the influent and effluent pumps are operating. Since the effluent pump is currently off-line, the effluent sampler is manually triggered to begin sampling. Composite samples are collected from the samplers monthly by Short Environmental Laboratories for total phosphorus analysis. Laboratory data and sample chain of custody reports are included in **Appendix A**. The analytical data are summarized in **Table 1**. Not all sampling trips made to the Milking R Dairy yielded samples due to dry periods between sampling events. Hour meters were also installed on the influent and effluent pumps to monitor run time and estimate the treatment system throughput.

Sampling and system maintenance trips are made monthly to Milking R Dairy and samples are collected if dairy runoff has entered or exited the treatment system. During operation and maintenance (O&M) trips the system is checked for any abnormalities and proper operation. Field notes from the O&M trips are included in **Appendix B**. The chemical injection pumps are calibrated each trip to deliver approximately 400 milliliters of alum per minute (mL/min) and the volume of chemical remaining in each tank is recorded. The influent pump is checked for operation and weeds are removed to ensure that the automated float system operates without interference. The auto samplers are calibrated to collect a 70 ml sample for every hour of pump operation (influent or effluent pumps). **Table 1** includes a record of the sampling and maintenance trips performed and relevant data.

Initial sampling results have shown an average of 53% reduction in phosphorus and approximately 96 pounds of phosphorus removed. Phosphorus reduction is expected to improve as antecedent phosphorus contained in the system is amended with alum and the treatment system is adjusted to improve performance.

The contract includes a seven month monitoring and reporting period and therefore, the treatment system will be monitored by HSA through March 2004. Another progress report will be submitted in April 2004 which will present data generated during the treatment system operation from January through March 2004. The proposed slow sand filter is scheduled to be

February 24, 2004

Ref. No. 80057243

constructed during the Spring of 2004; however construction is now pending implementation of a SFWMD Dairy Best Available Technology (BATs) project at the Milking R Dairy.

Please contact us if you have any questions or require additional information.

Yours truly,

Terrence R. Horan, P.E.
Project Manager

c.c: Sutton Rucks, Milking R Dairy
enc(s).

TABLES

Table 1
Summary of Treatment System Sampling and O&M Visits
Milking R Dairy Stormwater runoff Treatment Improvement Project

Date	Trip	Tank 1 Volume	Tank 2 Volume	Tank 3 Volume	Tank 4 Volume	Influent Total Phosphorus (mg/L)	Effluent Total Phosphorus (mg/L)	Influent Pump Hour Meter Reading	Treated Water (Million gallons)[2]
9/12/2003	Sampling	400	600	400	1100	9.76	5.04	497.2	0.00
9/16/2003	O&M	400	600	400	1100	--	--	497.2	0.00
9/29/2003	O&M	380	550	380	1100	--	--	539.2	0.76
10/27/2003	Sampling/ O&M	275	375	250	1075	0.49	--	614.8	2.12
11/17/2003	Sampling	275	350	275	1075	No Sample	No Sample	624.3	2.29
12/4/2003	O&M	275	325	275	1100	--	--	624.3	2.29
12/29/2003	Sampling	200	275	200	1075	5.68	3.22	675.3	3.21
					Average[3]	7.72	4.13		

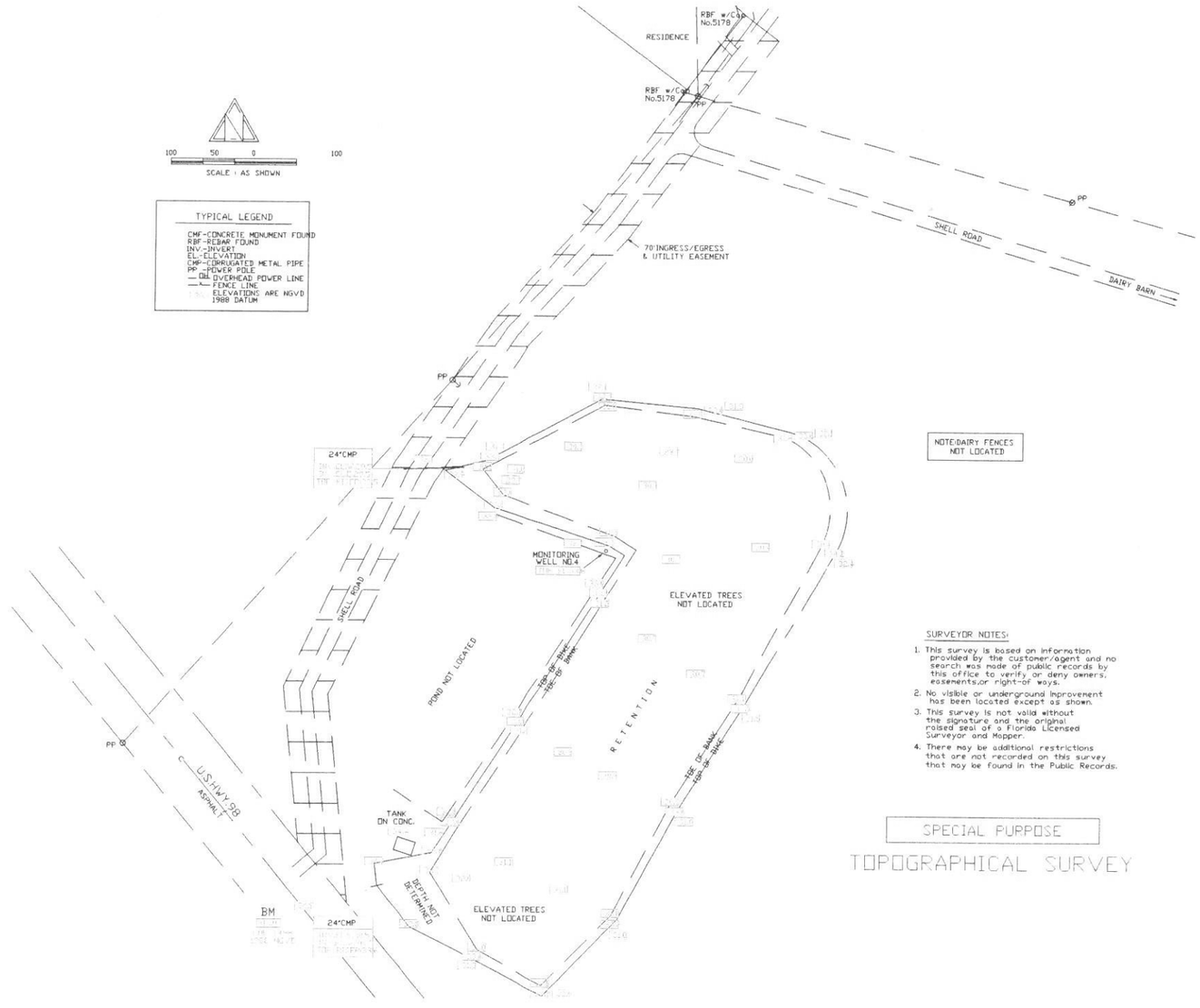
Notes:

[1] System startup during August 2003 for approximately 1 month of trouble shooting and "shakedown"

[2] The volume of treated water is calculated using a nominal pumping rate of 300 gallons per minute (gpm).

[3] Average total phosphorus values for the 9/12/03 and 12/29/03 sampling events.

FIGURES



100 50 0 100

SCALE : AS SHOWN

TYPICAL LEGEND

CMF-CONCRETE MONUMENT FOUND
RBF-REBAR FOUND
INV-INVERT
EL-ELEVATION
CMP-CORRUGATED METAL PIPE
PP -POWER POLE
—OHP— OVERHEAD POWER LINE
—x— FENCE LINE
ELEVATIONS ARE NGVD 1988 DATUM

NOTE:DAIRY FENCES NOT LOCATED

SURVEYOR NOTES:

1. This survey is based on information provided by the customer/agent and no search was made of public records by this office to verify or deny owners, easements,or right-of ways.
2. No visible or underground improvement has been located except as shown.
3. This survey is not valid without the signature and the original raised seal of a Florida Licensed Surveyor and Mapper.
4. There may be additional restrictions that are not recorded on this survey that may be found in the Public Records.

SPECIAL PURPOSE

TOPOGRAPHICAL SURVEY

DATE	NO.	REVISION	BY

DESIGNED BY:
DRAWN BY: M. LIFE 4/2/03
CHECKED BY:
APPROVED BY:

MILKING R DAIRY
OKEECHOBEE, FLORIDA
Client

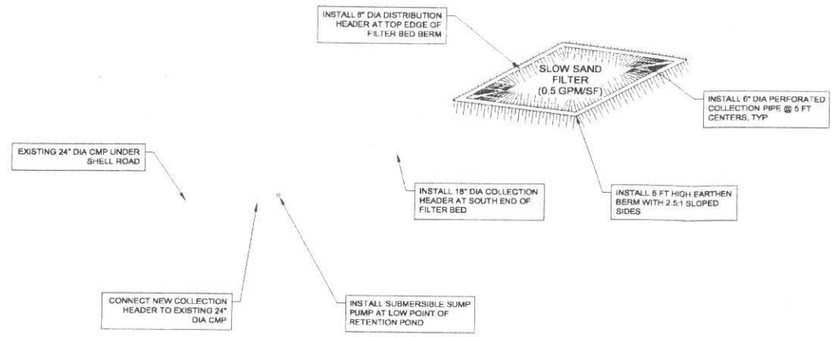
SURFACE RUNOFF COLLECTION AND TREATMENT
Project Title

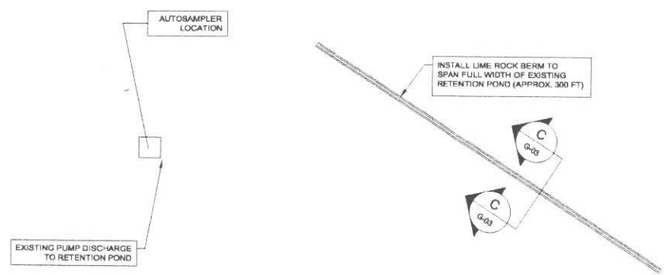
HSA ENGINEERS & SCIENTISTS

TOPOGRAPHICAL SURVEY

8005724300[003] DRAWING No. | 0 REV

G-01 FIG./SHEET No.





DATE	NO.	REVISION	BY

DESIGNED BY: _____
DRAWN BY: M. LIFE
CHECKED BY: _____
APPROVED BY: _____
4/2/03

MILKING R DAIRY
OKEECHOBEE, FLORIDA
Client

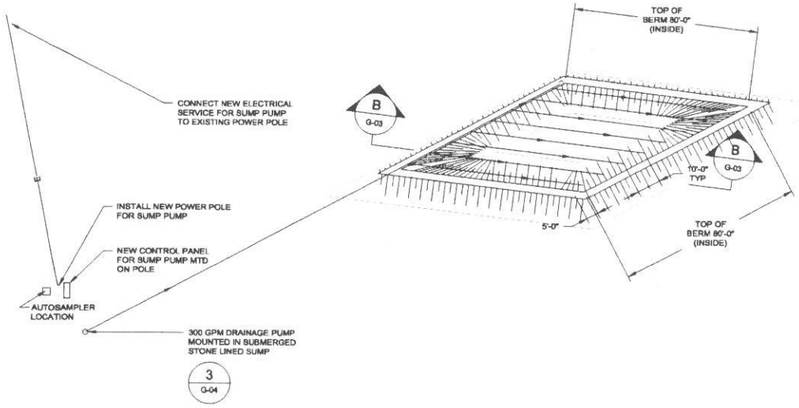
SURFACE RUNOFF COLLECTION AND TREATMENT
Project Title

HSA ENGINEERS & SCIENTISTS

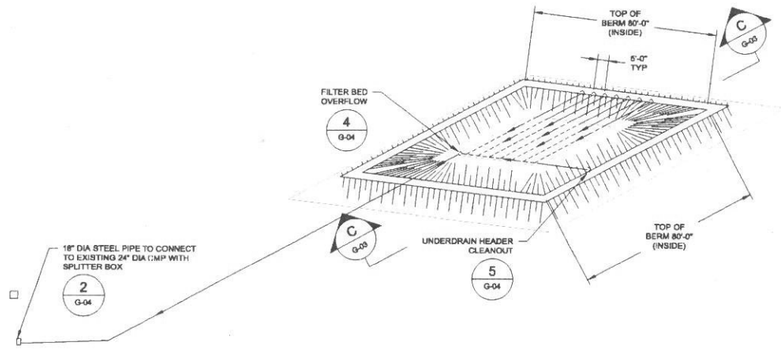
PROPOSED RETENTION POND TREATMENT MODIFICATIONS

8005724300[002] DRAWING No. | 0 REV.

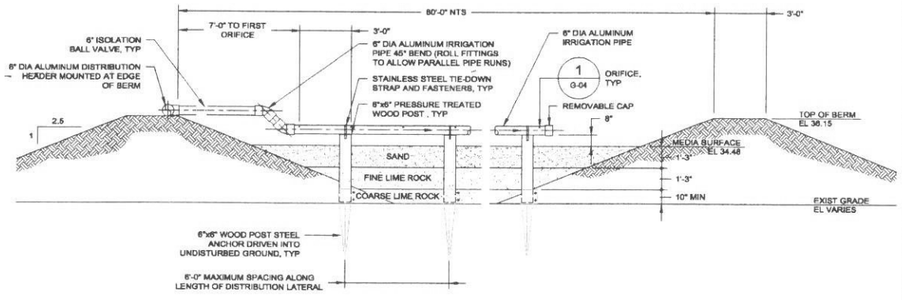
G-02 FIG./SHEET No.



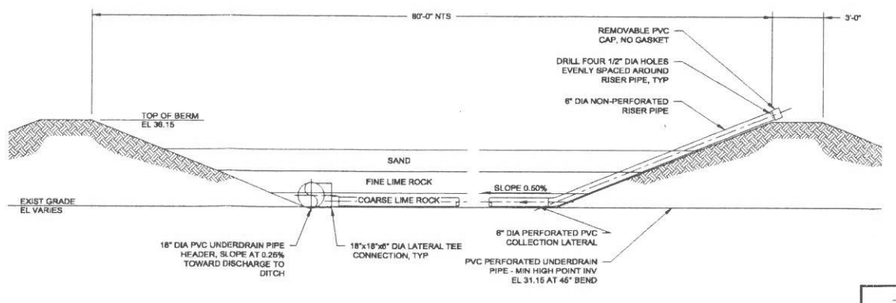
DISTRIBUTION PIPING PLAN
1:30



UNDERDRAIN PIPING PLAN
1:30



SECTION B G-03 DISTRIBUTION PIPING
1:4



SECTION C G-03 UNDERDRAIN PIPING
1:4

NOTE:

1. ALL EXPOSED PVC PIPING FOR DISTRIBUTION OR COLLECTION SYSTEMS TO HAVE TWO COATS OF A COMPATIABLE EXTERIOR GRADE ENAMEL FOR UV PROTECTION.

DATE	NO.	REVISION	BY

DESIGNED BY: _____
DRAWN BY: M. LIFE
CHECKED BY: _____
APPROVED BY: _____
4/2/03

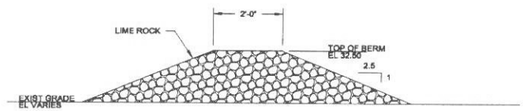
MILKING R DAIRY
OKEECHOBEE, FLORIDA
Client

SURFACE RUNOFF COLLECTION AND TREATMENT
Project Title

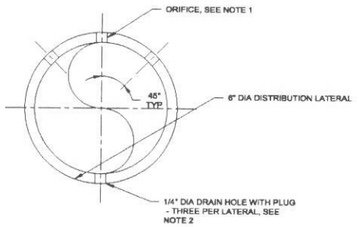
HSA ENGINEERS & SCIENTISTS

FILTER BED PLANS AND SECTIONS

8005724300[001] DRAWING No.
0 REV.
G-03 FIG./SHEET No.



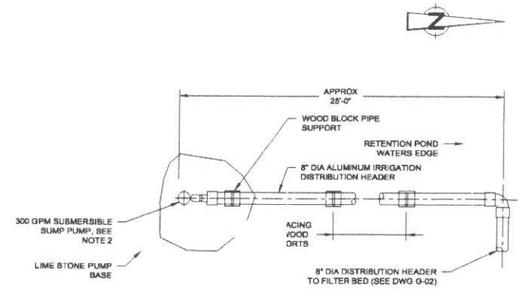
SECTION A (G-02) LIME ROCK BERM
1:4



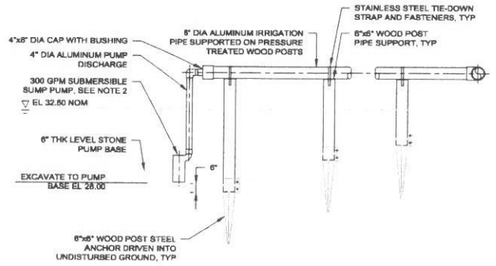
NOTES:

1. DISTRIBUTION LATERALS TO HAVE 66 ORIFICES PER LATERAL. ORIFICES TO BE PLACED IN GROUPS OF THREE AN 3'-0" CENTERS AS SHOWN. FIRST AND LAST LATERALS TO HAVE ORIFICES ON TOP AND AT 45° ANGLES TO INSIDE OF FILTER BED ONLY. ORIFICE GROUPS TO BE PLACED AT 6'-0" CTRS INITIALLY WITH A DIAMETER OF 7/32. FOLLOWING START-UP OF THE FILTER SYSTEM, THE REMAINING ORIFICES SHALL BE DRILLED.
2. EACH LATERAL PIPE TO HAVE THREE 1/4" DIA DRAIN HOLES IN PIPE INVERT AT EQUAL INTERVALS. PLACE 18" SQUARE CONCRETE TILE ON FILTER MEDIA SURFACE UNDER EACH DRAIN HOLE.

DETAIL 1 (G-03) DISTRIBUTION HEADER ORIFICE LAYOUT
NTS

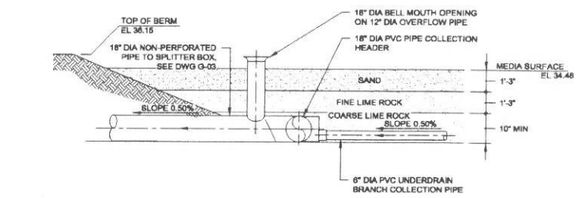


PLAN

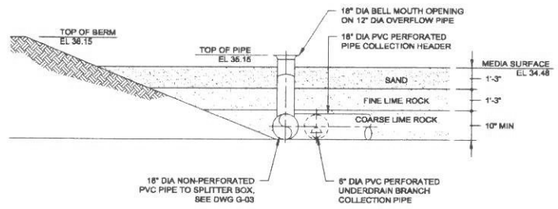


ELEVATION

DETAIL 3 (G-03) FILTER BED PUMPING STATION
1:4

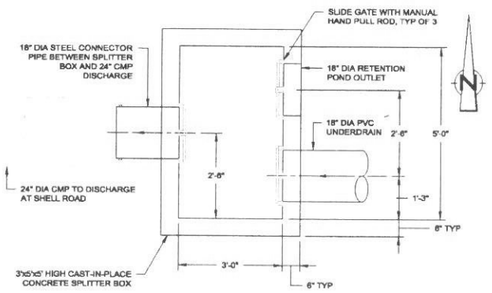


SIDE ELEVATION

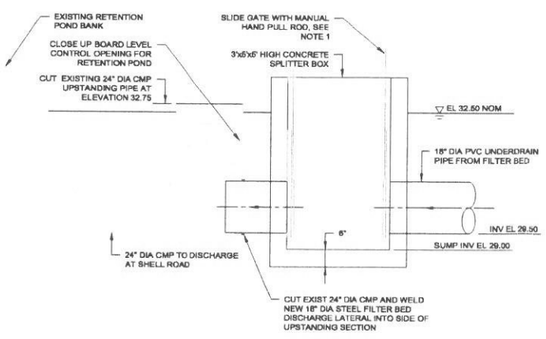


END ELEVATION

DETAIL 4 (G-03) FILTER BED OVERFLOW
NTS

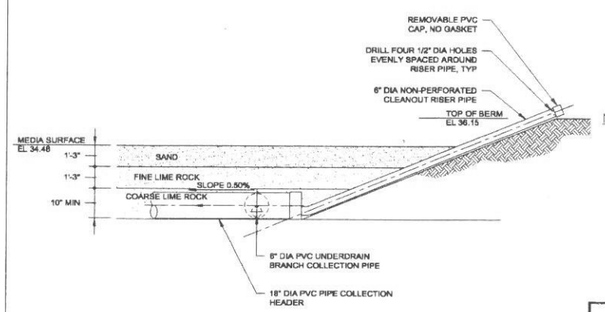


PLAN



ELEVATION

DETAIL 2 (G-03) DISCHARGE CONNECTION TO EXISTING CMP
1:2



DETAIL 5 (G-03) UNDERDRAIN HEADER CLEANOUT
NTS

NOTES:

1. SLIDE GATE: MANUFACTURED BY H. FONTAINE LTD. OR EQUAL. MODEL SERIES 22 ALUMINUM AND STAINLESS STEEL WATER CONTROL GATE WITH FRAME OPERATING STEM GUIDES AND WALL THIMBLE. GATES AND OPERATORS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AWWA C501, LATEST REVISION.
2. SUBMERSIBLE PUMP: MANUFACTURED BY PUMPEX MODEL P 1501 N, 6 HP, 3 PHASE, 575/3/60, 3400 RPM, WITH 4" DIA DISCHARGE OR EQUAL.

DATE	NO.	REVISION	BY

DESIGNED BY: _____
DRAWN BY: M. LIFE 4/2/03
CHECKED BY: _____
APPROVED BY: _____

MILKING R DAIRY
OKEECHOBEE, FLORIDA
Client

SURFACE RUNOFF COLLECTION AND TREATMENT
Project Title

HSA ENGINEERS & SCIENTISTS

SECTIONS AND DETAILS

8005724300[004] DRAWING No. | 0 REV.

G-04 FIG./SHEET No.

APPENDIX A

SHORT ENVIRONMENTAL LABORATORIES
10405 US 27 S
SEBRING, FL 33876
(863) 655-4022 (800) 833-4022
FAX: (863) 655-5820

SAMPLER'S NAME: (PLEASE PRINT) E. McCarty K. Koehler
SAMPLERS SIGNATURE: Ken Koehler E McCarty

PROJECT NAME: HSA ENGINEERING # 593
PROJECT: MILKING R
LOCATION: OKEECHOBEE

FIELD ID#	SAMPLE ID	DATE	TIME	SAMP TYPE	WELL	COMP	LABORATORY ID#	# OF CONT	LABORATORY ANALYSES: 250 ML TP						Hr meter
1006 B-1	BION INFLUENT	9/12/03 - 10/6/03	1000 ~~0940~~	SW		21 D	196904	1	X						6147
1006 B-1	BION EFFLUENT	9/12/03 - 10/6/03	~~1000~~ 0940	SW		21 D	196905	1	X						0000

Tank levels
1 - 250 g
2 - 375 g
3 - 250 g
4 - 1075 g

NUTRIENT CONTAINERS PRESERVED, H2SO4
METALS CONTAINER PRESERVED, HNO3
ICED TO 4 DEGREES C

YES	NO
/	
/	

3/1/13

SAMPLE QTY:	RELINQUISHED BY:	ACCEPTED BY:	DATE:	TIME:
2	Ken Koehler	[signature]	10-6-03	1505

DEPARTED LAB	
ARRIVED SITE	0925
DEPARTED SITE	1010
ARRIVED LAB	

total time = 45 min.

CHAIN OF CUSTODY AND TRANSMITTAL FORM

SHORT ENVIRONMENTAL LABORATORIES, INC.
10405 US 27 South
Sebring, Florida 33876
(800) 833-4022 FDOH# E85458, FDEP QAP# 880516 (863) 655-4022

For: HSA Engineers & Scientists
1486-A Skees Rd.
West Palm Beach, FL 33411-
Attn: Thomas C. Emenhiser

11/03/03

Laboratory ID Number: 196904-196905
Project : Milking R
Location : Okeechobee
Sample type: Surface Water
Sampled By : E. McCarta/K. Koehler on 09/12/03 @ 1000
Received : 10/06/03 @ 1505

REPORT OF ANALYSIS

LABORATORY DATA
Parameter - Total Phosphorus (P)
c = composite

Lab ID#	Sample ID	Date & Time of Sample Collection	Analytical Result	Units	Method	Analyst	Date/Time of Analysis	MDL
196904	01 Bion influent	09/12/03 @ 1000c	9.76	mg/L	EPA 365.1	J. Maurer	10/07/03 @ 0904	0.005
196905	02 Bion effluent	09/12/03 @ 0940c	5.04	mg/L	EPA 365.1	J. Maurer	10/07/03 @ 0904	0.005

Respectfully Submitted,

Bruce Cummings
Laboratory Director

SHORT ENVIRONMENTAL LABORATORIES

10405 US 27 S
SEBRING, FL 33876
(863) 655-4022 (800) 833-4022
FAX: (863) 655-5820

SAMPLER'S NAME: (PLEASE PRINT) K. Koehler
SAMPLERS SIGNATURE: Ken Koehler
PROJECT NAME: HSA ENGINEERING
PROJECT: MILKING R
LOCATION: OKEECHOBEE

FIELD ID#	SAMPLE ID	DATE	TIME	SAMP TYPE	WELL	COMP	LABORATORY ID#	# OF CONT	LABORATORY ANALYSES: 250 ML						
									TP		HOURS	SAMPLE COUNT			
—	BION INFLUENT	10-27-03	—	SW		21 D		1	X		006148	0			
—	BION EFFLUENT	1	—	SW		21 D		1	X		000000	0			

Tank 1: 275
Tank 2: 375
Tank 3: 250
Tank 4: 1075
both sites dry. No samples taken.

NUTRIENT CONTAINERS PRESERVED, H2SO4
METALS CONTAINER PRESERVED, HNO3
ICED TO 4 DEGREES C

YES	NO

SAMPLE QTY:	RELINQUISHED BY:	ACCEPTED BY:	DATE:	TIME:

DEPARTED LAB	0810
ARRIVED SITE	0900
DEPARTED SITE	0951
ARRIVED LAB	

CHAIN OF CUSTODY AND TRANSMITTAL FORM

SHORT ENVIRONMENTAL LABORATORIES

10405 US 27 S
SEBRING, FL 33876
(863) 655-4022 (800) 833-4022
FAX: (863) 655-5820

SAMPLER'S NAME (PLEASE PRINT): E. McCarta D. Hadden

SAMPLER'S SIGNATURE: E. McCarta D Hadden

PROJECT NAME: HSA ENGINEERING #860

PROJECT: MILKING R

LOCATION: OKEECHOBEE

FIELD ID#	SAMPLE ID	DATE	TIME	SAMP TYPE	WELL	COMP	LABORATORY ID#	# OF CONT	LABORATORY ANALYSES: 250 ML	TP					
1118D-1	BION INFLUENT	11-18-03	1525	SW		21 D	199687	1		X					
	BION EFFLUENT			SW		21 D		1		X					

Influent meter - 6243 hrs.

NUTRIENT CONTAINERS PRESERVED, H2SO4
METALS CONTAINER PRESERVED, HNO3
ICED TO 4 DEGREES C

YES	NO
✓	
✓	
✓	

37975

SAMPLE QTY:	RELINQUISHED BY:	ACCEPTED BY:	DATE:	TIME:
1	E. McCarta	[illegible]	11-18-03	1615

DEPARTED LAB	
ARRIVED SITE	
DEPARTED SITE	
ARRIVED LAB	

CHAIN OF CUSTODY AND TRANSMITTAL FORM

SHORT ENVIRONMENTAL LABORATORIES, INC.
10405 US 27 South
Sebring, Florida 33876
(800) 833-4022 FDOH# E85458, FDEP QAP# 880516 (863) 655-4022

For: HSA Engineering & Scientists
1486-A Skees Road
West Palm Beach, FL 33411-
Attn: Thomas Emenhiser

12/26/03

Laboratory ID Number: 199687
Project : Milking R
Location : Okeechobee
Sample type: Surface Water
Sampled By : E. McCarta/D. Hadden on 10/27/03 @ 1525
Received : 11/18/03 @ 1615

REPORT OF ANALYSIS

LABORATORY DATA
Parameter - Total Phosphorus (P)
c = composite

Lab ID#	Sample ID	Date & Time of Sample Collection	Analytical Result	Units	Method	Analyst	Date/Time of Analysis	MDL
199687	Bion influent	10/27/03 @ 1525c	0.448	mg/L	EPA 365.1	J. Maurer	11/21/03 @ 0854	0.005

Respectfully Submitted,

Bruce Cummings
Laboratory Director

SHORT ENVIRONMENTAL LABORATORIES

10405 US 27 S
SEBRING, FL 33876
(863) 655-4022 (800) 833-4022
FAX: (863) 655-5820

SAMPLER'S NAME: (PLEASE PRINT) K. Koehler	PROJECT NAME: HSA ENGINEERING	
SAMPLERS SIGNATURE: Ken Koehler	PROJECT: MILKING R	LOCATION: OKEECHOBEE

FIELD ID#	SAMPLE ID	DATE	TIME	SAMP TYPE	WELL	COMP	LABORATORY ID#	# OF CONT	LABORATORY ANALYSES: 250 ML / TP		HOURS				
	BION INFLUENT	11-17-03		SW		21 D		1	X						
	BION EFFLUENT	"		SW		21 D		1	X	000000					

Tank 1: 250 Tank 3: 275

Tank 2: 350 Tank 4: 1075

Influent will be sampled @ a later date. No one was found to unlock door

	YES	NO
NUTRIENT CONTAINERS PRESERVED, H2SO4		
METALS CONTAINER PRESERVED, HNO3		
ICED TO 4 DEGREES C		

SAMPLE QTY:	RELINQUISHED BY:	ACCEPTED BY:	DATE:	TIME:

DEPARTED LAB	
ARRIVED SITE	
DEPARTED SITE	
ARRIVED LAB	

CHAIN OF CUSTODY AND TRANSMITTAL FORM

SHORT ENVIRONMENTAL LABORATORIES

10405 US 27 S
SEBRING, FL 33876
(863) 655-4022 (800) 833-4022
FAX: (863) 655-5820

SAMPLER'S NAME (PLEASE PRINT): K. Koehler

SAMPLERS SIGNATURE: Ken Koehler

PROJECT NAME: HSA ENGINEERING #568

PROJECT: MILKING R

LOCATION: OKEECHOBEE

FIELD ID#	SAMPLE ID	DATE	TIME	SAMP TYPE	WELL	COMP	LABORATORY ID#	# OF CONT	LABORATORY ANALYSES: 250 ML TPA		Hours				
C1229A-1	BION INFLUENT	12-29-03	1005	SW		21 D	202200	1	X		006753				
C1229B-1	BION EFFLUENT	"	1021	SW		21 D	202206	1	X		000000				

Tank 1: 200 Tank 3: 200

Tank 2: 275 Tank 4: 1075

NUTRIENT CONTAINERS PRESERVED, H2SO4
METALS CONTAINER PRESERVED, HNO3
ICED TO 4 DEGREES C

YES	NO

✓ 38768

SAMPLE QTY:	RELINQUISHED BY:	ACCEPTED BY:	DATE:	TIME:
2	Ken Koehler	Janice Estes	12-29-03	1310

DEPARTED LAB	
ARRIVED SITE	0950
DEPARTED SITE	1026
ARRIVED LAB	

CHAIN OF CUSTODY AND TRANSMITTAL FORM

SHORT ENVIRONMENTAL LABORATORIES, INC.
10405 US 27 South
Sebring, Florida 33876
(800) 833-4022 FDOH# E85458, FDEP QAP# 880516 (863) 655-4022

For: HSA Engineering & Scientists
1486-A Skees Road
West Palm Beach, FL 33411-
Attn: Thomas Emenhiser

01/22/04

Laboratory ID Number: 202200-202201
Project : Milking R
Location : Okeechobee
Sample type: Surface Water
Sampled By : K. Koehler on 12/29/03 @ 1005
Received : 12/29/03 @ 1310

REPORT OF ANALYSIS

LABORATORY DATA
Parameter - Total Phosphorus (P)

Lab ID#	Sample ID	Date & Time of Sample Collection	Analytical Result	Units	Method	Analyst	Date/Time of Analysis	MDL
202200	01 Bion Influent	12/29/03 @ 1005	5.68	mg/L	EPA 365.1	J. Maurer	01/05/04 @ 0720	0.005
202201	02 Bion Effluent	12/29/03 @ 1021	3.22	mg/L	EPA 365.1	J. Maurer	01/05/04 @ 0720	0.005

Respectfully Submitted,

Bruce Cummings
Laboratory Director

SHORT ENVIRONMENTAL LABORATORIES, INC.
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For: HSA Engineering & Scientists
1486-A Skees Road
West Palm Beach, FL 33411-
Attn: Thomas Emenhiser

01/22/04

Laboratory ID Number: 202200-202201
Project : Milking R
Location : Okeechobee
Sample type: Surface Water
Sampled By : K. Koehler on 12/29/03 @ 1005
Received : 12/29/03 @ 1310

REPORT OF ANALYSIS

LABORATORY DATA
Parameter - Total Phosphorus (P)

Lab ID#	Sample ID	Date & Time of Sample Collection	Analytical Result	Units	Method	Analyst	Date/Time of Analysis	MDL
202200	01 Bion Influent	12/29/03 @ 1005	5.68	mg/L	EPA 365.1	J. Maurer	01/05/04 @ 0720	0.005
202201	02 Bion Effluent	12/29/03 @ 1021	3.22	mg/L	EPA 365.1	J. Maurer	01/05/04 @ 0720	0.005

Respectfully Submitted,

Bruce Cummings
Laboratory Director

APPENDIX B

Milking R Dairy Treament System Log

Date: 9/16/03

System operational upon arrival? yes

Influent Pump Running? no **Influent Pump Hour Meter Reading** 497.2

Effluent Pump Running? no **Effluent Pump Hour Meter Reading** 0

Chemical Storage Tank Levels

Tank 1 400 gal. **Tank 2** 600 gal.

Tank 3 400 gal. **Tank 4** 1100 gal.

Injection Pumps Calibrated? yes **Injection Rate** 400 ml/min

Notes/Comments: Both pumps 1 + 2 were calibrated. Pump 2 set to standby for backup. weeds / aquatic vegetation were cleaned around influent pump.

Milking R Dairy Treament System Log

Date: 9/29/05

System operational upon arrival? yes

Influent Pump Running? no **Influent Pump Hour Meter Reading** 539.2

Effluent Pump Running? no **Effluent Pump Hour Meter Reading** 0

Chemical Storage Tank Levels

Tank 1 340 gal. **Tank 2** 550 gal.

Tank 3 340 gal. **Tank 4** 1100 gal.

Injection Pumps Calibrated? yes **Injection Rate** 400 ml/min

Notes/Comments: Installed toggle switch to effluent autosampler. Calibrated autosampler ~~to~~ pickup volumes.

Milking R Dairy Treament System Log

Date: 10/27/03

System operational upon arrival? yes

Influent Pump Running? no Influent Pump Hour Meter Reading 6141.6

Effluent Pump Running? no Effluent Pump Hour Meter Reading 0

Chemical Storage Tank Levels

Tank 1 275 gal. Tank 2 375 gal.

Tank 3 250 gal. Tank 4 1075 gal.

Injection Pumps Calibrated? yes Injection Rate 4100 ml/min

Notes/Comments: Autosamplers calibrated

Milking R Dairy Treament System Log

Date: 12/4/03

System operational upon arrival? yes

Influent Pump Running? no Influent Pump Hour Meter Reading 624.3

Effluent Pump Running? no Effluent Pump Hour Meter Reading 0

Chemical Storage Tank Levels

Tank 1 275 gal. Tank 2 325 gal.

Tank 3 275 gal. Tank 4 1100 gal.

Injection Pumps Calibrated? yes Injection Rate 400 ml/min

Notes/Comments: lock missing on effluent sampler box.
Vegetation removed from around influent pump intake and float switches.
Autosampler calibrated